

PATENT SPECIFICATION  
DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

A Vehicle Rear-View Mirror Combined with a Flashing Turn Indicator

I, SHIGERU MARUYAMA, a Japanese national residing at No. 426, Rokkakubashi-machi, Kanagawa-ku, Yokohama City, Kanagawa Prefecture, Japan, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to vehicle rear-view mirrors combined with flashing turn indicators for motorcars, bicycles, motorcycles, and the like.

It is a principal object of this invention to combine the functions of a fender rear-view mirror and flashing turn indicator. Many prior attempts have been made to combine the functions of a fender rear-view mirror and flashing turn indicator. But most of these attempts were simply to combine the rear-view mirror and turn indicator in one unit. That is, in these attempts, some part of the unit functioned as a rear-view mirror and another part of the unit functioned as a turn indicator. And the other prior attempts were to make a part or the whole of the mirror surface function as a flashing turn indicator. But these attempts were not satisfactory in that the part or the whole of the mirror surface which functioned as a turn indicator lost its original function as a rear-view mirror when it was used as a turn indicator.

One feature of this invention resides in the point that the reflecting surface of the unit always functions as a rear-view mirror even when the above-mentioned reflecting surface gives warning to the drivers of the other vehicles to the rear and alongside as a flashing turn indicator. When the turn indicator flashes, the whole mirror surface lights up giving warning to other vehicles as to the drivers intention, and the whole surface of

the mirror does not lose its original functions as a rear-view mirror.

A relatively strong source of light is preferred for effective functioning in the daytime when the sun's rays may be especially bright: as during clear fair weather. Installation of over-strong lamps, however, would rule out the possibility of utilizing the vehicle's original installed flasher relay. On the other hand, increasing the transparency of the glass would decrease its effectiveness as a rear-view mirror. Excessively bright rays, however, may be cast toward the driver due to the angle of the mirror while also blurring out the rear image while the light flashes on. Either way, this may cause great inconvenience to the driver.

A further characteristic of this invention resides in methods by which such shortcomings are nullified.

In this invention, the vehicle rear-view mirror-flashing turn-indicator unit comprises a housing having an opening, a partially light-transmitting mirror having a reflecting surface extending across said opening, mounting means for mounting a flashing turn-indicator lamp within above-mentioned housing, whereby light from the enclosed lamp is directed through the mirror and a shutter means.

The shutter means are disposed within the housing intermediate the mirror and the lamp for directing light from the lamp in a given direction, i.e. not to the driver of the vehicle but to the drivers of the other vehicles and pedestrians to the rear and alongside, through the reflecting surface when the lamp is flashing.

The shutter means include a number of parallel shutter blades set in a predetermined angle relative to the mirror, whereby light from the lamp is transmitted through the mirror but in a direction away from the

[Price 4s. 6d.]

driver so that the unit functions as a rear-view mirror when the lamp is flashing.

In this way, this invention combines the functions of the rear-view mirror and flashing turn-indicator in such a way that is immediately visible to vehicles in the rear or alongside where such visibility is most urgently required. Not only has this invention increased such visibility but it has done so with maximum simplicity, thus decreasing cost accordingly.

In the accompanying drawings:

Fig. 1 is a front elevational view showing the complete exterior of the mirror-turn-indicator unit;

Fig. 2 is the reverse view of Fig. 1;

Fig. 3 shows a cut-away side view of this unit;

Fig. 4 shows the mirror with attached shutter;

Fig. 4a is an end elevation thereof;

Fig. 4b is a fragmentary enlarged view of the mirror and shutter, and

Fig. 5 is an example of using this invention showing the light beam diverted toward the exterior of a bicycle on which the unit is mounted.

In the drawings, (1) is a partially light-transmitting vehicle mirror having a partially reflecting surface; (2) is a flashing turn-indicator lamp; (3) is a compartment of the mirror in which the lamp is enclosed; (4) is the lamp socket; and (5) a housing. When electrical supply wires leading from the lamp are connected to the source of electricity of the turn-indicator in the vehicle, the unit is adapted to perform a turn-indicator function. The addition of color to the flashing lamp by known processing will enhance its eye-catching value. It should be understood that such a modification is included in the scope of this invention.

Figs. 3, 4, 4a and 4b indicate the use of a rigid shutter (6) like a little venetian blind which is used to transmit light rays from the driver when the lamp is flashing. The lamp side of each shutter blade (6) is a reflecting surface and the opposite mirror-facing side (7) of each shutter blade is a non-reflecting surface. Light from the interior of the lamp compartment (3) will be concentrated in the direction desired most effectively and screened and reflected away from the driver. The rear-view mirror is able to function as such even while the lamp is flashing.

The shutter material employed may be metal, plastics, paper or other suitable material having inherent optical reflective properties or capable of being treated to give such properties. The number of shutter blades is optional; the number of blades is governed by amount of space available. (An increased number of blades makes possible a decrease in width of each blade; as their

relative orientation remains constant, this means less space will be required.) A shutter blade angle of  $45^\circ$  is considered more or less standard. The blades are positioned as close to the mirror surface as possible to prevent unwanted random reflections.

The reason why the light from the lamp does not have a bad effect on the function of rear-view mirror is as follows.

Owing to the angle of the shutter blades, the light from the lamp never goes into the driver's eyes directly. Only scattered rays may go into the driver's eyes. But the intensity of the scattered rays is very weak, because the scattered rays which may go into the driver's eyes must be scattered at least twice on the surfaces of the shutter blades (6). So, the most of the light which shines upon the surfaces of the shutter blade is absorbed on the surfaces and very small fraction of the light is reflected.

So the light which may go into the driver's eyes is very much weakened and from the driver's view point, the inside of the unit seems to be much darker than the outside of the unit, and the unit functions as a mirror.

Thus, the several aforementioned objects and advantages are most effectively attained, although a somewhat preferred embodiment of this invention has been disclosed and described in detail herein, it should be understood that this invention is in no sense limited thereby, and its scope is to be determined by the appended claims.

For example, as shown in dashed line on the shutter in the Fig. 4, by setting a screen with an arrow shaped opening of a preferred size at a preferred position between the mirror (1) and the shutter or designing the shutter itself to have an arrow shaped opening, turning of the vehicle is indicated by an arrow of light emitted through the said opening in a designated color. Also, the prevent a traffic accident on a foggy or smoggy night, an additional opening with a lens (10) covering it, in the back of the mirror housing as shown in Fig. 2 and Fig. 3 can give an effective warning to other vehicles in front and alongside, if the lens (10) is colored in yellow or amber, through dense fog and smog. The said opening is in the back of the mirror housing of this invention; the shutter behind the mirror serves to prevent undesirable light passing through the lens (10) from outside from interfering with the mirror surface.

#### WHAT I CLAIM IS:—

1. A vehicle rear-view mirror-flashing turn-indicator unit comprising: a housing having an opening; a partially light-transmitting mirror having a reflecting surface extending across said opening; mounting means for mounting a flashing turn-indicator lamp within said housing whereby light from the

enclosed lamp is directed through the mirror;  
a shutter means being disposed within said  
housing intermediate said mirror and said  
lamp for directing light from the lamp in a  
5 given direction through the reflecting surface  
when the lamp is flashing, the shutter means  
including a number of parallel shutter blades  
set in a predetermined angle relative to the  
mirror, whereby light from the lamp is trans-  
10 mitted through the mirror but in a direction  
away from the driver so that the unit func-

tions as a rear-view mirror when the lamp is  
flashing.

2. A vehicle rear-view mirror-flashing turn-  
indicator unit as claimed in Claim 1 in 15  
which the whole surface of the mirror trans-  
mits light to give warning to other vehicles  
while the mirror surface does not lose its  
reflecting function when the turn-indicator  
lamp is lit. 20

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of the Original on a reduced scale

FIG. 1.

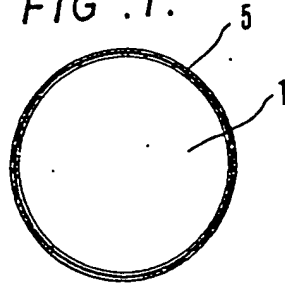


FIG. 2.

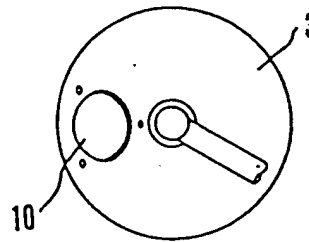


FIG. 3.

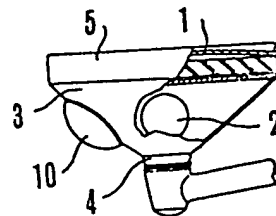


FIG. 4.

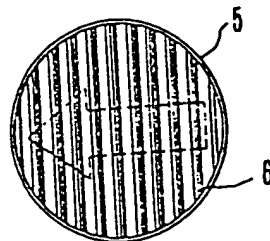


FIG. 5.

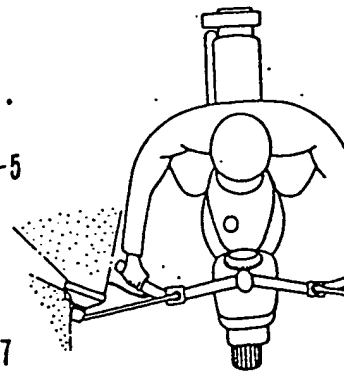


FIG. 4.a.



FIG. 4.b.

